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GENERAL STUDIES (TEST CODE : 1419)

Name of Candidate	RIA DABI		
Medium Eng./Hindi	ENGLISH	Registration Number	62420
Center	ONLINE	Date	6.11.20

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
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11	15	
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18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

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1. Highlighting the issues associated with power discoms in India, discuss whether privatizing discoms can help in this regard. **(150 words) 10**
भारत में विद्युत वितरण कंपनियों (डिस्कॉम्स) से जुड़े मुद्दों पर प्रकाश डालते हुए, चर्चा कीजिए कि क्या डिस्कॉम्स के निजीकरण से इस संबंध में सहायता मिल सकती है।

Majority of electricity distributed in India is through public discoms. However, the power discoms face certain challenges such as:

1) High number of losses and accumulating non-performing assets.

2) Lack of connectivity to rural or remote regions, resulting in many households without continuous supply of electricity.

3) Use of outdated technology

4) Theft of electricity and no severe penalties to punish guilty.

5) Huge AT&C losses in discoms

6) Excess manpower employed - resulting in more losses.

To address the above problems,

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UDAY scheme was introduced. Privatisation of discoms is another solution. It can be beneficial as:

1) It may help bring efficiency in the discoms functioning, with better technology and management practices.

2) Loss making units may shut down, giving rise to new efficient units, resulting in competitiveness, and rise in revenue.

However, privatisation can also be disadvantageous as:

1) The tariffs may become high and electricity unaffordable for poor households.

2) It can lead to monopoly and predatory pricing practices.

Therefore, it is essential that power discoms must be reformed to provide power to all.

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2. Harnessing Smart Agriculture can potentially be a game-changer for farm productivity in India. Discuss. (150 words) 10
स्मार्ट कृषि का दोहन संभवतः भारत में कृषि उत्पादकता के लिए निर्णायक सिद्ध हो सकता है। चर्चा कीजिए।

Agriculture sector contributes 15% to the GDP and employs 40% of the population, thus becoming an important sector. To increase farm productivity, smart agriculture is often thought of as the solution because:

1) within smart agriculture, use of technology is essential. with help of GM technology, drought resistant seeds can be produced.

2) Nano sensors can be placed to predict rainfall pattern or test fertility of soil and its requirements.

3) Nano capsules can be used to efficiently plant seeds in soil
Eg: Precision farming model by NITI Aayog & IBM.

4) Drones or data analytics can

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help to prevent growth of weeds. Technology can also be used to prevent pests from harming crops.

5) Autonomous tractors can help in harvesting crops efficiently.

6) For transportation and storage of crops, AI based warehouses or machines can be a big help.

However, ~~climate~~ smart agriculture also has limitations:

1) Lack of research and expertise
2) Lack of funds to develop such technology
3) Lack of training and awareness among farmers to use such techniques.

Therefore, it is important to address such challenges and utilise smart technology in the best way to increase agricultural productivity.

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3. Rather than focusing solely on quantity, inclusive growth concerns itself with the quality of growth. Discuss. **(150 words) 10**

केवल परिमाण पर ध्यान केंद्रित करने के बजाय समावेशी विकास, संवृद्धि की गुणवत्ता के साथ भी अपना सरोकार रखता है। चर्चा कीजिए।

Growth and development are the two sides of a coin. While growth focuses on quantity, development is a broader term. In this context, inclusive growth as a concept emerged, where both quantity and quality of growth are important.

Inclusive growth is essential in India today because:

1) While 97% of population holds on to 30% resources, 1% ultra rich section has control over majority of resources, according to oxfam report.

2) While India has 128 agro-climatic zones, it still ranks 94th in the

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Global Hunger Index and has the highest child wasting rate globally.

3) With the second largest population in the world, over 92% of our workers are employed in the unorganised sector.

Therefore, to bring about inclusive growth, we need the following:

1) Focus on educating and skilling the young population, ensuring good job placements.

2) Further taxing the rich and distributing surplus to the poor.

3) Welfare schemes for ensuring food security to all citizens.

Government schemes like MGNREGA, National Food Security Act, PM Kaushal Vikas Yojana, Samagra Shiksha Abhiyan etc. are all steps in the right direction to achieve this goal.

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4. In the backdrop of Atmanirbhar Bharat, discuss the core areas crucial in export promotion for India to become a manufacturing hub.
(150 words) 10

आत्मनिर्भर भारत की पृष्ठभूमि में, भारत के लिए एक विनिर्माण केंद्र बनने हेतु निर्यात संवर्धन में महत्वपूर्ण मुख्य क्षेत्रों (कोर एरिया) की विवेचना कीजिए।

In the context of Atmanirbhar Bharat, the ideas of self-reliance and 'Vocal for local' have become prominent. For India to become a manufacturing hub, the following areas are crucial in export promotion :

1) Quality of goods produced should pass the test of phytosanitary barriers to increase exports to western countries eg. milk exports to Australia

2) As the Economic Survey 2019-20 points out, we lag behind China not in terms of specialisation but quantity. Mass scale production, introduction of new technology, upskilling of workers is essential.

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3) The Economic survey also points out that India is the only Asian country with a trade deficit in Network Products. Therefore, we must increase our contribution in the global supply chain. Eg: Focus on automobiles, mobile phone assembling etc.

4) The marketing and branding of Indian products needs to be improved, to compete with foreign brands. Eg: Indian cotton is of better quality than other varieties, but not marketed enough.

5) Government policy should be supportive. Eg: Allowing FDI in various sectors.

These core areas can make India an exporting hub. It needs to be integrated with the 'Make in India' scheme as well.

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5. Arsenic pollution is becoming a severe environmental issue in India. Enumerating its various sources, discuss the consequences and measures to tackle it. **(150 words) 10**

आर्सेनिक प्रदूषण भारत में एक गंभीर पर्यावरणीय मुद्दा बनता जा रहा है। इसके विभिन्न स्रोतों को सूचीबद्ध करते हुए, इसके परिणामों और इससे निपटने के उपायों पर चर्चा कीजिए।

Arsenic pollution is a serious challenge in India. The CGWB report points out 21 states having arsenic levels higher than the BIS stipulated permissible limit.

The sources of arsenic pollution are as follows:

1) Industrial waste, not treated properly or waste water disposed off in water bodies, contaminating it.

2) Natural levels of arsenic are found in some states like Bihar, West Bengal, Jharkhand.

3) Arsenic is also found in contaminated drinking water, or in tobacco plants.

The consequences of this are:

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1) Long-term exposure can lead to cancer in skin and lungs.

2) It can contaminate food and water by arsenic residues left behind.

3) It can cause skin changes such as thickening and pigmentation.

The mitigation measures are:

1) collecting data over arsenic affected areas and water bodies and monitoring the same.

2) Penalties for industries not treating the waste water.

3) less use of harmful chemicals in agriculture.

4) use of techniques like bio-remediation to remove arsenic from prone areas.

These steps will help India to fight the serious challenge of arsenic pollution.

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6. The Green Term Ahead Market (GTAM) can invigorate the renewable energy sector in India. Evaluate. **(150 words) 10**

ग्रीन टर्म अहेड मार्केट (GTAM) भारत में नवीकरणीय ऊर्जा क्षेत्रक को सुदृढ़ बना सकता है। मूल्यांकन कीजिए।

India has a large potential for generating renewable energy and in context of dependence on fossil fuels and climate change, the Green Term Ahead Market (GTAM) can further invigorate the renewable energy sector.

GTAM is an alternative new model introduced for selling off the power by the renewable developers in the open market without getting into long-term power purchase agreements.

Transactions through GTAM will be bilateral in nature and price discovery will take place on a continuous basis.

The significance of GTAM is:

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1) The introduction of GTAM platform would lessen the burden on renewable energy rich states and incentivise them to develop RE capacity beyond their own RPO.

2) This would promote RE merchant capacity addition and help achieve RE targets of India.

3) It will lead to increase in number of participants in RE sector.

4) It will benefit buyers of RE through competitive prices and transparent & flexible procurement.

5) It will also benefit RE sellers by providing access to a pan-India market.

Thus, the GTAM scheme will help India meet its target of 175 GW RE capacity by 2022 and commitments under Paris Agreement.

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7. In context of the increasing importance of technology for disaster management, throw some light on the application of GIS and Remote Sensing in disaster management with specific examples from India. **(150 words) 10**

आपदा प्रबंधन के लिए प्रौद्योगिकी के बढ़ते महत्व के संदर्भ में, भारत से विशिष्ट उदाहरणों को प्रस्तुत करते हुए आपदा प्रबंधन में जी.आई.एस. और सुदूर संवेदन के अनुप्रयोग पर कुछ प्रकाश डालिए।

Use of technology to mitigate the effects of disasters is a crucial step in disaster management.

GIS provides a tool for efficient storage and manipulation of remotely sensed data. This facilitates measurement, mapping and monitoring of disasters.

The specific GIS applications in risk assessment are:

1) Hazard mapping to show landslides, floods or fire hazards

2) Tropical cyclone threat maps are used to improve warning services and communicate with people.

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Examples of GIS are numerous. Like carrying out research and rescue operations during Amphan cyclone using GIS.

Remote sensing, on the other hand, makes observation of any object from a distance easy. It records images from sensors on aircrafts or satellites.

Eg: LANDSAT, SPOT satellite, Satellite Radar system etc.

In India, remote sensing satellites like CARTOSAT, INSAT have been used in hazard risk mapping, MEGHA TROPIQUES for monitoring rainfall and cyclones.

Thus, GIS and remote sensing can make disaster management more efficient.

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8. The CRISPR/Cas9 genetic scissors have revolutionized the genome editing technique with applications in various areas. Discuss. **(150 words) 10**
क्रिस्पर/कैस9 (CRISPR/Cas9) आनुवंशिक कैंची द्वारा विभिन्न क्षेत्रों में अनुप्रयोगों के साथ जीनोम संपादन तकनीक में क्रांतिकारी परिवर्तन का संचार किया गया है। चर्चा कीजिए।

The CRISPR/Cas9 technology is a guider RNA plus nuclease enzyme like a pair of molecular scissors, which helps in genome editing. It has won the Nobel Prize for chemistry in 2020 for its widespread application:

1) CRISPR/Cas9 can be used to treat diseases like cancer or inherited diseases like sickle cell anaemia, by removing the defective genes.

2) CRISPR/Cas9 can also be used to edit genetic structure of plants, to make them pest or drought resistant.

3) It can also be used to save

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various animals from extinction.

4) CRISPR/cas9 technology was recently employed for testing of COVID-19 patients. Eg: Feluda Test.

Thus, CRISPR/cas9 is an easy and efficient technology. However, it also has certain limitations:

1) It can be used to make designer babies. Eg: Hi Jiankui in china The health impacts of such modifications are unknown.

2) It can be used to produce super humans as biological weapons.

3) The technology is not 100% accurate and can lead to unintended mutations.

Therefore, CRISPR/cas9 is certainly a revolutionary technology but needs more research, before it can be fully used.

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9. Bring out the role played by Financial Action Task Force in tackling the menace of money laundering. (150 words) 10
धन-शोधन के खतरे से निपटने में वित्तीय कार्रवाई कार्य बल द्वारा निभाई गई भूमिका को स्पष्ट कीजिए।

The financial Action Task force (FATF) is an inter-governmental body established in 1989 during G7 summit in Paris. It combats money laundering, terrorist financing and other financial threats. India is one of the members.

The FATF has tackled the menace of money laundering in the following ways:

1) It makes recommendations for combating such crimes, reviews members' policies and procedures etc.

2) It seeks to increase acceptance of anti-money laundering

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regulations across the globe.

3) It divides and designates countries into Black or Grey lists, depending on their contribution to money laundering.

Eg: Iran and North Korea in the Black list, Pakistan in Grey list

4) This results in economic sanctions from IMF, World Bank and such countries find it difficult to get loans.

They are also boycotted indirectly.

5) FATF has also regional style bodies like Asia Pacific Group, East Asia Group etc., to monitor such activities more closely.

Thus, FATF has been more or less successful in combating money laundering.

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10. Discuss the recent reforms that have been undertaken in the National Security Architecture of India. (150 words) 10
भारत की राष्ट्रीय सुरक्षा संरचना में हाल ही में किए गए सुधारों की विवेचना कीजिए।

India has always focused on increasing its national security and has done a successful job. The National Security Architecture mainly consists of civilian and military branches. The recent reforms undertaken are:

1) Creation of the post of chief of Defence Staff, to promote tri-service harmony and cooperation.

2) Amending the UAPA and NIA laws to designate individuals as terrorists and includes acts of nuclear terrorism as well. This is relevant in context of increasing lone-wolf attacks across the globe.

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3) Creation of Indian cyber crime coordination centre under MHA, to tackle cyber threats.
Eg: Cyber attack in Kundankulam nuclear plant.

4) Introducing a Tour of Duty scheme, to induct more youth into defence forces and promote patriotism among all citizens.

5) Focus on indigenisation of defence products and promoting work of ordnance factories.

6) Inducting Rafale jets from France and S-400 missile system from Russia.

7) Testing of scramjet missile successfully by DRDO.

Thus, the national security continues to remain a priority.

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11. Bring out the key hurdles that are being faced in accomplishing land reforms in India. Also, discuss the advantages which can be reaped by accomplishing them in contemporary times. **(250 words) 15**

भारत में भूमि सुधारों को पूरा करने में सामना की जा रही प्रमुख बाधाओं को स्पष्ट कीजिए। साथ ही, समकालीन समय में इन्हें पूरा करने से होने वाले लाभों की भी विवेचना कीजिए।

Land reforms were initiated soon after independence, to provide farmers their due rights. Reforms like zamindari abolition, tenancy reforms, land ceiling, distribution of surplus land etc. were started. However, land reforms could not be implemented properly.

Still, the key hurdles that being faced in accomplishing land reforms are:

1) Absence of land records, missing pages, no organised collection etc.

2) Lack of political and bureaucratic will to implement land reforms.

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3) Loopholes in the laws that were exploited by rich farmers eg. selling off land to a distant family member and buying it later under land ceiling laws.

4) Lack of an organised peasant movement in the country to demand implementation of reforms.

5) Politicisation of the issue, divided on lines of caste and religion. Eg: Rise of Dominant castes, leading to others being marginalised.

6) Left wing extremism has become a big hurdle in implementing land reforms in the eastern states.

The advantages that can be

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reaped by accomplishing them are as follows:

1) It will lead to reduction of disparity among farmers as small and marginal farmers will get their requisite land.

2) It will increase agricultural productivity and thus GDP in turn.

3) Left wing extremism will be reduced as land reforms will be implemented successfully.

4) It will help us implement the Gandhian vision of villages as self-sufficient little republics.

Thus, land reforms must be implemented effectively. Digitisation of land records, monitoring by officials and civil society and making farmers aware are required to make this a reality.

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12. India needs to accord more significance to nutritional security than food security. Comment. In this context, suggest a framework that should be adopted by the government to achieve nutritional self-reliance.
(250 words) 15

भारत को खाद्य सुरक्षा की तुलना में पोषण सुरक्षा को अधिक महत्व देने की आवश्यकता है। टिप्पणी कीजिए। इस संदर्भ में, वह रूपरेखा भी बताइए जिसे सरकार द्वारा पोषण संबंधी आत्मनिर्भरता प्राप्त करने के लिए अपनाया जाना चाहिए।

India has the second largest fertile land after the USA and has 128 agro-climatic zones. Thus, food security is achievable. However, nutritional security is now the new challenge.

India ranks 94th in the Global Hunger Index and has the highest child wasting rate in the world. Indian children suffer from undernutrition and malnourishment.

In the rural areas, due to lack of hygiene, sanitation, clean drinking water, children and women remain malnourished.

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Further, the Green Revolution led to emphasis on production of rice and wheat while millets, oilseeds and pulses were ignored. This has led to iron and zinc deficiencies.

The poor sections also face exclusion from food security schemes due to lack of Aadhaar card and remain hungry.

In the urban areas, with increased import of foreign food products, consumer choices have increased but their nutrition levels are decreasing.

In such food swamps, more unhealthy food is eaten, full of chemicals Eg: Fast food while the indigenous, nutritional items are forgotten.

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In this context, the government needs to adopt the following framework for nutritional self-reliance:

1) Increased production of nutrient rich food eg. millets, pulses, green vegetables by incentivising farmers through higher MSP for such crops.

2) Making children and parents aware by including nutrition and health in school curriculum.

3) In Mid Day Meal schemes, children should be given fortified products, to increase nutrition levels.

4) Promoting organic Indian food products through exhibitions, or fairs.

These steps will help India become a nutrition rich nation.

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13. Private investments are key for India to move into a high growth trajectory. Discuss. Also highlight the steps taken by the government in recent times to address the fall in private investments. **(250 words) 15**

निजी निवेश भारत के लिए उच्च संवृद्धि पथ पर आगे बढ़ने हेतु महत्वपूर्ण हैं। चर्चा कीजिए। साथ ही, निजी निवेश में गिरावट को दूर करने के लिए हाल के दिनों में सरकार द्वारा उठाए गए कदमों को भी रेखांकित कीजिए।

Private investments are key for India to become a fast growing economy due to the following reasons:

1) Private investment helps to usher in efficient management practices and new technology to increase work productivity.

2) It also helps in better allocation and distribution of resources.

3) It helps to increase competition and break the monopoly of public firms.

4) It also helps to improve India's status in the global economy.

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However, as the Rangarajan committee pointed out, private investments are not always good because:

1) It may not necessarily increase the efficiency of a firm

2) It may result in undervaluation of a company's assets, while selling to a private player.

3) It may result in unemployment and reduced social security for the workers.

4) It may result in transfer pricing, predatory pricing, base erosion and profit shifting etc.

The government has taken the following steps to address the fall in private investment:

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1) Introduction of Make in India and Digital India schemes

2) Allowing FDI in various sectors eg. food processing, defence, media, retail shopping etc.

3) Abolition of Dividend Distribution Tax and reduction of Angel Tax for start-ups.

4) Skilling of workers under schemes like Atal Innovation Mission, PM Kaushal Vikas Yojana.

5) Improving ease of doing business (63rd rank in WB Index), cutting red tapism etc.

Therefore, such steps will help to increase private investments into India and integrate it with the global economy.

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14. India's geographical diversity and varied levels of development across regions necessitate a targeted region specific action plan to ensure a minimum acceptable level of prosperity. Elaborate. **(250 words) 15**

भारत की भौगोलिक विविधता और विभिन्न क्षेत्रों में विकास के भिन्न-भिन्न स्तर समृद्धि के एक न्यूनतम स्वीकार्य स्तर को सुनिश्चित करने के लिए एक लक्षित क्षेत्र विशिष्ट कार्य योजना को आवश्यक बनाते हैं। सविस्तार वर्णन कीजिए।

India is a geographically diverse region and the states have their own levels of development. However, this growth is varied as found in:

1) The Northern states like Punjab, Haryana, Uttar Pradesh are agriculturally rich states and were the main centres of Green Revolution.

2) The Southern states like Kerala, Tamil Nadu, Karnataka have progressed in terms of literacy, gender equality and becoming IT hubs.

3) The coastal states like Gujarat,

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West Bengal, mainly earn revenue through fishing and aquaculture.

4) The North-east region remains backward due to difficult terrain and language barriers.

5) While Kerala, Himachal Pradesh, Puducherry are top rankers in NITI Aayog's SDG Index, Uttar Pradesh and Bihar are at bottom.

6) The BIMAARU states as coined by Amartya Sen, continue to languish due to low levels of development.

Therefore, a targeted region specific action plan is required for states in India:

1) The Red corridor in India which has fertile land and has significant tribal population, needs to have schemes for increased agriculture and selling

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of tribal products to earn revenue.

2) The coastal states need to utilise hydropower potential to have uninterrupted power and increase employment. They also need to improve port infrastructure for more trade.

3) States like Tamil, Nadu, Gujarat, Rajasthan, can incentivise wind energy generation.

4) The flood and cyclone prone states need to have disaster management policies in place.

5) The mineral rich Eastern states need to use better technology to utilise its potential.

Therefore, such region-specific action plans can make India more developed.

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15. Empowering the farmers by ensuring barrier-free trade in the agriculture produce is critical in doubling their incomes. Enumerating the existing bottlenecks, discuss how the recent legislations can help in overcoming them. **(250 words) 15**

कृषि उपज का निर्बाध व्यापार सुनिश्चित करके किसानों का सशक्तीकरण करना उनकी आय दोगुनी करने में महत्वपूर्ण है। वर्तमान बाधाओं का उल्लेख करते हुए, चर्चा कीजिए कि इन पर नियंत्रण पाने में हालिया अधिनियम कैसे सहायता कर सकते हैं।

Agriculture is the backbone of our nation. To double farmers' income by 2022 is an objective to be realised. Barrier-free trade in agriculture produce is critical for this. However, farmers face bottlenecks such as:

1) Within the APMC Mandis, there is monopoly of middlemen and cartelisation practices.

2) Farmers also face many tariff barriers and have to pay taxes or commissions.

3) The farmers are not allowed to sell outside the mandis

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and they do not get remunerative prices for their products.

4) There is no provision for value addition of products within such mandis.

5) If rejected by mandis then farmers are forced to sell their produce to the government, receiving even less wages.

In this context, the government has introduced various legislations to help the farmers:

1) The Farmers' Produce Trade and Commerce Bill

2) The Farmers Agreement of Price Assurance & Farm Services Bill

3) Essential Commodities Amendment Bill 2020

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These will help farmers in the following ways:

1) It creates trading areas free of middlemen and government taxes outside APMCs.

2) It will allow farmers to sell their produce directly to these new zones without paying mandi fees.

3) It removes stock holding limits and curbs on inter-state trade and creates a framework for contract farming.

4) These bills promote creation of Farmer Producer Organisations to create a level playing field.

5) It enables private players to invest in warehousing, other marketing infrastructure. Thus, it will create 'One Nation, One Market'.

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16. The reasons for recurring floods in the regions of Eastern India such as Bihar and Assam go far beyond their topography. Discuss. Also, suggest measures to control this menace. **(250 words) 15**

बिहार और असम जैसे पूर्वी भारत के क्षेत्रों में बार-बार आने वाली बाढ़ के लिए केवल उनकी स्थलाकृति उत्तरदायी नहीं हैं। चर्चा कीजिए। साथ ही, इस खतरे को नियंत्रण में लाने के उपायों का भी सुझाव दीजिए।

Floods in India are a recurring incident. The Eastern states are particularly prone to floods due to the following reasons:

1) Geography of this region where rivers like Kosi, Brahmaputra, often change their courses.

2) Excessive rainfall and flat terrain leads to floods.

3) Apart from natural factors, anthropogenic reasons are also present, such as deforestation leading to soil erosion and vulnerability to floods.

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4) Mismanagement of the drainage system, inefficient water holding systems and poor construction

5) Unplanned urbanisation, and poor capacity of dams.

The measures to control this menace are as follows:

1) Mitigation: Hazard Risk Vulnerability Assessment, using drones to collect data, mapping of the flood prone regions and monitoring them during monsoon.

2) Preparedness: Structural measures like building flood walls, dams, embankments and non-structural measures like strict rules of construction, de-silting of drains before monsoon, bio-shelters like wetlands, mangroves.

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3) Response: During time of floods, quick evacuation of people, providing them shelter, food, medicines etc. using technology to disseminate information.

4) Recovery: As the sendai framework suggests, to help in reconstruction, rehabilitation and to Build Back Better.

Since floods are recurring in nature in these states, it is essential to follow these measures to minimise the damage to lives and property.

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17. How can 5G technology potentially bring about a digital revolution in India? Identify the challenges in adoption of 5G technology in India.

(250 words) 15

5G प्रौद्योगिकी संभावित रूप से भारत में एक डिजिटल क्रांति कैसे ला सकती है? भारत में 5जी प्रौद्योगिकी को अपनाने में आने वाली चुनौतियों की पहचान कीजिए।

5G technology is the next generation of mobile broadband that will eventually replace or augment 4G LTE connection.

5G technology can bring about a digital revolution in India as:

1) 5G offers exponentially faster download and upload speeds. It will offer multi-Gbps peak rates and ultra-low latency.

2) KPMG predicts the cumulative impact of 5G in India at $1 trillion by 2035.

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3) It will help in creating cyber-physical networks to interconnect people, objects and devices.

4) It will act as an enabler for Industrial Revolution 4.0. 5G will usher in emerging technologies like IoT, AI, Big Data thus supporting services like driverless vehicles, telesurgery and real-time data analytics.

5) It can help improve productivity in sectors like agriculture, industry, education, health care, finance etc.

However, there are various challenges associated with the use of 5G in India:

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1) Expensive enabling infrastructure, requires more costly investment

2) Threats of cyber attack as 5G will be a part of critical infrastructure.

3) It will be costly for consumers as well since new phones suited to 5G will have to be purchased.

4) The financial health of the telecom sector is already poor. Bidding for 5G air waves will be a challenge for debt-ridden telecom companies.

Therefore, we need to set up regulatory procedures for use of 5G, help telecom sector recover and invest in research to make the use of 5G technology as beneficial as possible.

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18. Besides computing, quantum technology has potential applications in various areas. Discuss. What are the challenges which lie ahead for effective utilization of quantum technology? **(250 words) 15**

संगणना के अतिरिक्त, क्वांटम प्रौद्योगिकी के विभिन्न क्षेत्रों में संभाव्य अनुप्रयोग हैं। चर्चा कीजिए। क्वांटम प्रौद्योगिकी के प्रभावी उपयोग के समक्ष आने वाली चुनौतियां क्या हैं?

Quantum technology is based on the principles of quantum mechanics. It is based on the principles of quantum entanglement, superposition and qubits.

The various applications of quantum technology are as follows:

1) secure communication.
eg. between terrestrial stations and satellites done by China

2) Research: Helps in solving fundamental questions in physics related to gravity, black holes.

3) Disaster Management:
floods, Tsunamis, earthquakes

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can become more predictable with quantum technology.

4) Pharmaceuticals : To treat chronic diseases, reduce time in discovery of new molecules

5) Augments Industrial Revolution 4.0 and leverages other technologies like IoT, machine learning, robotics, AI etc.

The challenges associated with quantum technology are :

1) Difficulty to harness properties of quantum superposition in a highly controlled manner. The qubits are very fragile.

2) challenge of creating algorithms and applications for quantum computers.

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3) It will place new demands on classical control hardware and software platforms.

4) Threat of cyber attacks

5) Lack of resources, research and expertise.

The recent initiatives of the government to launch the National Mission on Quantum Technologies and Applications (NMQTA) and QUEST are steps in the right direction.

By addressing the challenges, the potential benefits of quantum technology can be fully harnessed.

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19. While most insurgent groups in North-East India have given up violence and are engaged in peace talks with the government, a number of issues could create hurdles in the future. Discuss. **(250 words) 15**

जहाँ पूर्वोत्तर भारत में अधिकांश विद्रोही गुटों ने हिंसा छोड़ दी है और सरकार के साथ शांति वार्ता में संलग्न हैं, वहीं अनेक ऐसे मुद्दे हैं जो भविष्य में बाधाएं उत्पन्न कर सकते हैं। चर्चा कीजिए।

The North-east region has suffered from insurgency since independence due to ethnic tensions and poor development. However, in recent times, the insurgent groups are engaged in peace talks with the government, as seen in:

1) Bru refugees, who escaped from Mizoram towards Tripura. Recently Bru agreement was signed.

2) ongoing talks with Naga groups and historic ceasefire agreement signed in 2014.

3) peaceful talks with Bodo groups

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to address their demands for Bodoland and rights.

4) Peaceful talks with insurgents in Manipur and Arunachal Pradesh over misuse of AFSPA.

However, there could be certain challenges in such peace talks:

1) In the Bru agreement, the natives or locals of Tripura are now protesting against staying of Brus while the repatriated Brus in Mizoram want to go to Tripura.

2) Naga groups are divided among themselves and a few extremists continue to demand a Greater Nagalim. This has led to protests in neighbouring states of Assam, Arunachal

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since a Greater Nagalim will include parts of their territories.

3) The Bodo Agreement is being criticised by rebel groups in Assam since they feel their powers are being limited to accommodate the Bodos.

4) The demand for Inner Line Permit has now come from Assam and ~~Manipur~~ Meghalaya as well.

Therefore, in order for peace to prevail in the North-East, we need to solve ethnic tensions, increase security forces presence, provide developmental aid and indulge in more dialogue.

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20. Identifying the key vulnerabilities in India's cyberspace, discuss the framework which should be adopted in the envisaged new cyber security policy in India. **(250 words) 15**

भारत के साइबर जगत में प्रमुख सुभेद्यताओं की पहचान करते हुए, उस रूपरेखा पर चर्चा कीजिए, जिसे भारत में परिकल्पित नई साइबर सुरक्षा नीति में अपनाया जाना चाहिए।

Cyber space has become the new frontier of national security architecture. use of technology has now become a double-edged sword. India has seen many cyber attacks in the recent past. Eg: On the Kudankulam nuclear Plant, use of malware like Pegasus, D-Track, etc.

The key vulnerabilities in India's cyber space are as follows:

1) Low spending on securing the cyber space, lack of

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adequate infrastructure to make critical information secure

2) low research and expertise in dealing with cyber attacks

3) The cyber cells find it difficult to track criminals since they are anonymous and often use the Dark Web. India does not have the required technology to close down the Dark Web.

4) Lack of uniform policy on cyber security

5) Lack of training among police and other forces to deal with cyber attacks.

In order to address the above challenges, the following framework should be adopted:

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1) Increasing spending on cyber security infrastructure and providing the required training to police to track down criminals.

2) Establishing a protective ring around the Dark web to stop criminal activities by detecting them early. Eg: TOR in USA

3) Establishment of an independent authority to deal with cyber security and an advisory council with IT experts.

The initiatives of government like Indian Cyber crime Coordination centre, Cyber Swachhta Kendra, Cyber Surakshit Bharat etc. are all steps in the right direction.

Further reforms will enhance India's cyber security.

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GENERAL STUDIES (TEST CODE : 1524)

Name of Candidate	RIA DABI		
Medium Eng./Hindi	ENGLISH	Registration Number	62420
Center	ONLINE	Date	1.12.2020

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Q. No.	Maximum Marks	Marks Obtained
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17	15	
18	15	
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20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

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(इस भाग में कुछ ना लिखें)

1. Tenancy reforms are much needed to give a boost to the Indian agricultural sector. Comment. In this context, also discuss the significance of the Model Land Leasing Act, 2016. **(150 words) 10**

भारतीय कृषि क्षेत्रक को बढ़ावा देने के लिए काश्तकारी सुधारों की अत्यंत आवश्यकता है। टिप्पणी कीजिए। इस संदर्भ में, मॉडल भूमि पट्टा अधिनियम, 2016 के महत्व की भी विवेचना कीजिए।

Tenancy reforms aim at regulation of rent, provide security of tenure and confer ownership to tenants. It provides provisions for registration of tenants, to bring them directly under the state.

Tenancy reforms will boost the agriculture sector :

1) security of tenure for owners without any arbitrary ejection.

2) leads to social equity for poor tenants

3) Reduces number of land disputes

4) Increases agricultural productivity

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The significance of the Model land leasing Act is as follows:

1) It enables tenant farmers and sharecroppers to avail bank credit, crop insurance and disaster relief benefits.

2) It allows consolidation of farm land, reduces cost of cultivation and increases profitability.

3) Land can be leased out for allied activities like animal husbandry.

4) It allows quicker litigation process in case of disputes.

5) The duration of lease is decided mutually by owner and tenant.

Thus, the Model Act has transformed agriculture sector.

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2. Identify the various challenges that have restricted the entry of Indian MSMEs into the foreign market. Also mention some government initiatives that have been taken to facilitate MSME exports. **(150 words) 10**

विदेशी बाजारों में भारतीय MSMEs के प्रवेश को बाधित करने वाली विभिन्न चुनौतियों की पहचान कीजिए। साथ ही, MSME के निर्यात को सुगम बनाने के लिए सरकार द्वारा की गई कुछ पहलों का भी उल्लेख कीजिए।

MSMEs are considered the backbone of the indian economy. They employ second largest number of people after agriculture. They contribute 45% of total exports from India.

The challenges that restrict their entry in foreign market are:

1) Lack of sufficient credit
2) Lack of skilled manpower
3) Ineffective marketing strategy
4) competition from MNCs and other big industries
5) found mainly in unorganised sector.

anything this margin (इस भाग में कुछ ना लिखें)

6) low quality products impact export competitiveness.

7) outdated machinery

8) cumbersome government procedures and regulations.

The government schemes that help increase MSME exports are:

1) Udyami Mitra Portal to improve accessibility of credit

2) Digital MSME scheme to use internet to access services

3) Revamped scheme of Fund for Regeneration of Traditional Industries (SFURTI) to enhance marketability

4) ASPIRE to promote entrepreneurship

Thus, such efforts will help to increase MSME exports further and make India a manufacturing hub.

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(इस भाग में कुछ ना लिखें)

3. India's march towards inclusive growth and it achieving the Sustainable Development Goals are intricately linked. Discuss. **(150 words) 10**
समावेशी विकास की दिशा में भारत की प्रगति और संधारणीय विकास लक्ष्यों की प्राप्ति जटिल रूप से जुड़े हुए हैं। चर्चा कीजिए।

Inclusive growth means ensuring equal benefits for all, reducing income inequalities and other social mishaps.
The UN has introduced SDGs to be achieved by 2030 by all countries.

Inclusive growth and achieving SDGs are linked:

1) SDG 1 defines zero poverty. India has second largest number of poors after Nigeria. Reducing poverty would lead to inclusive growth.

2) SDG 2 defines zero hunger. India ranks 94th on Global

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Hunger index and has the highest wasting rate in the world. Ensuring food security, would improve quality of life of citizens.

3) SDG 3 means ensuring good health and well-being for all. India has inadequate health infrastructure and a large population. Health security for all would mean utilising demographic dividend.

4) SDG 4 means quality education. Literacy among all citizens, will lead to a better livelihood.

5) SDG 5 means gender equality. Ensuring women are not discriminated against, will help to utilise their potential.

Thus, achieving SDGs will leads to better social outcomes for India.

margin
(इस भाग में कुछ ना लिखें)

4. Highlight the need for evolving an appropriate system of Rules Of Origin in regional trading arrangements. What steps have been taken by India recently in this regard? **(150 words) 10**

क्षेत्रीय व्यापार व्यवस्थाओं में उत्पत्ति के नियमों की एक उपयुक्त प्रणाली विकसित करने की आवश्यकता पर प्रकाश डालिए। हाल ही में, भारत द्वारा इस संबंध में क्या कदम उठाए गए हैं?

Rules of origin signifies having the knowledge of where particular products are coming from. It helps to be certain about the identity of the importing country.

The need for Rules of origin in regional arrangements is :

1) As seen in RCEP, India did not sign it because rules of origin mechanism was weak. It would have led to flooding of markets with cheap chinese products.

2) Without rules of origin,

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countries like china can send their imports through the route of other countries eg. Vietnam

3) Rules of origin helps to maintain transparency and protects domestic manufacturers.

India has taken the following steps in this regard:

1) Introducing the Customs (Administration of Rules of origin under Trade Agreements) Rules 2020. It has strict provisions to prevent misuse of rules.

2) An importer now will have to meet the prescribed originating criteria and possess a list of minimum information.

Thus, these rules will strengthen hands of customs in checking misuse of duty concessions under FTAs.

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5. MSP regime is a creation of an era of scarcity in the 1960s. Discuss its relevance in the current era of surplus agricultural production.
(150 words) 10

MSP व्यवस्था 1960 के दशक के अभावग्रस्तता के युग का एक आविष्कार है। अधिशेष कृषि उत्पादन के वर्तमान समय में इसकी प्रासंगिकता की विवेचना कीजिए।

The MSP is the rate at which the government buys grains from farmers. It was created to counter price volatility of agricultural commodities and protect farmers.

The relevance of MSP today

1) It helps farmers to get remunerative prices even if the market faces volatility.

2) It extends to different crops and covers all kinds of farmers

3) It increases incentive for farmers to cultivate different crops and thus helps to ensure

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food security and adequate nutrition.

However - the MSP's relevance has been questioned because:

1) Today, we are a self-sufficient agricultural nation.

2) MSP has become the maximum price instead of the floor price according to Economic Survey

3) MS Swaminathan's suggestion of MSP being 1.5 times cost of production has not been implemented.

4) It has become a politicised issue and leads to more volatility instead of reducing it.

Therefore, the MSP mechanism needs to be reformed, keeping in mind the current situation and ensuring welfare of farmers.

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6. Examine the link between the recent locust attack and climate change. **(150 words) 10**

हाल ही में हुए टिड्डियों के हमले और जलवायु परिवर्तन के मध्य संबंध का परीक्षण कीजिए।

Locusts are short-horned grasshoppers. FAO has said that it was the worst locust attack in 26 years. States like Punjab, Rajasthan, Gujarat, saw their crops and vegetation being adversely affected.

The locust attack is linked to climate change:

1) Locusts found easy breeding grounds due to increased rainfall. The climate change induced Indian Ocean Dipole, in its positive phase, led to more rainfall in Indian subcontinent.

anything this margin (इस भाग में कुछ ना लिखें)

2) The cyclones witnessed in Yemen, Oman and Arabian Sea led to more rainfall, thus inducing locust growth.

3) Strong winds also helped the locusts since they are passive flyers. climate change has increased the intensity of western Disturbances, which is favourable for locusts.

4) climate change has also led to warmer climate, inducing more moisture in the air. Locusts prefer such areas for laying eggs.

Therefore, combating climate change is essential to fight such locust attacks in the future.

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(इस भाग में कुछ ना लिखें)

7. Highlighting the properties of Carbon Nanotubes, discuss its applications. (150 words) 10

कार्बन नैनोट्यूब्स के गुणधर्मों पर प्रकाश डालते हुए, इसके अनुप्रयोगों की विवेचना कीजिए।

Carbon nanotubes (CNT) are cylindrical molecules that consist of rolled-up sheets of single-layer carbon atoms (graphene).

The properties of CNT are:

1) They are extremely small and light weight

2) Resources required to produce them are plentiful and many can be made with only a small amount of material.

3) They are resistant to temperature changes and biodegradable

4) They are expensive

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The applications of CNT are:

1) Can be used as carrier of drugs and antigens in human body.

2) can be made into artificial blood capilliaries for an injured body part

3) can be used as drug carriers to treat tumours

4) can be used as additives to various structural materials for electronics, optics, plastics and other materials of the nanotechnology fields.

Therefore, CNT are versatile and its potential should be utilised thoroughly.

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8. India's domestic patent regime privileges public health over pharmaceutical industry's interests. Comment. (150 words) 10
भारत की घरेलू पेटेंट व्यवस्था औषध उद्योग के हितों पर सार्वजनिक स्वास्थ्य को विशेषाधिकार प्रदान करती है। टिप्पणी कीजिए।

India's domestic patent regime saw a 50% rise in number of patents granted in 2017. Pharmaceuticals sector accounted for 15% of Indian domestic applications for patents.

India's domestic patent regime privileges public health over industry because:

1) Patents prefer public health concerns to ensure life saving drugs are made available at a lower cost and are accessible to all.

2) It is necessary to ensure

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that private sector does not establish a monopoly and makes profit generation the main motive.

3) It is necessary to save human lives since Indians suffer from a large burden of diseases.

4) It helps to regulate prices since India imports majority of Active Pharmaceutical ingredients (APIs) from China.

5) It helps to uphold India's position as largest provider of generic medicines and helping other countries as well as seen during COVID-19 crisis.

Thus, public health remains a priority over industrial motives.

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9. Bring out the arguments surrounding the idea of employing the principle of 'one border - one force' on Indian borders. **(150 words) 10**
भारतीय सीमाओं पर 'एक सीमा-एक बल' के सिद्धांत का उपयोग करने के विचार के चतुर्दिक व्याप्त तर्कों को स्पष्ट कीजिए।

One - Border - one force is a policy through which each of the CAPFs is designated a particular border to guard.
Eg: In 2004, to achieve this idea, the entire stretch of India - china border was assigned to ITBP.

This concept will be helpful because:

1) It will help in better coordination since a single force will be placed at the border area.

2) It will help to reduce costs and ensure better operational

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readiness as well.

3) It will help to improve our defence capabilities and have a better understanding of the threats of that border area.

However, this concept has some limitations:

1) It can be an opportunity for the enemy state to use diversionary tactics and violate ceasefire and protocol.

2) Mixture of forces leads to different strategies being employed and increase security.

Therefore, one Border - one force should be employed only after a cost-benefit analysis, with national security the priority.

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10. Assess the need to create a new cadre of Indian Frontier Administrative Service to undertake the vital tasks at Indian frontiers. **(150 words) 10**
भारतीय सीमांतों पर महत्वपूर्ण कार्यों को संपादित करने के लिए भारतीय सीमांत प्रशासनिक सेवा का एक नया संवर्ग बनाने की आवश्यकता का मूल्यांकन कीजिए।

The Indian frontier Administrative service (IFAS) was created as a separate cadre in 1954 to administer the North east frontier Agency. It helped to combat chinese incursions in the region.

Looking at the recent Galwan stand-off and past Doklam conflict, the need to create a new cadre of IFAS has been mooted.

1) It will help to increase national security at the frontiers through increased manpower and resources.

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2) It will help to better defend our frontiers, especially in sensitive regions eg. chicken's Neck corridor, chumbi valley, North east India.

3) It will reduce the burden on other security forces and create a specialised cadre exclusive for frontiers.

4) It will lead to better coordination and less casualties.

5) Taking experience from IFAS created for Arunachal pradesh will be helpful.

Thus, creating a separate cadre of IFAS seems like a good option, in the present scenario.

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11. The main objective of Union Budget 2020-21 is to provide "Ease of Living" to all citizens. Analyse the framework proposed in the Budget 2020-21 to achieve this objective. **(250 words) 15**

केंद्रीय बजट 2020-21 का मुख्य उद्देश्य सभी नागरिकों को "ईज़ ऑफ़ लिविंग" (जीवन सुगमता) प्रदान करना है। इस उद्देश्य को प्राप्त करने के लिए बजट 2020-21 में प्रस्तावित ढांचे का विश्लेषण कीजिए।

The central theme of union Budget 2020-21 is 'Ease of living for all citizens'. It is based on three prominent themes:

1) Aspirational India
better standards of living with access to health, education and better jobs for all sections of society.

2) Economic Development for all - Sabka Saath, Sabka vikas, Sabka Vishwas

3) caring society
Both humane and compassionate
Antyodaya as an article of faith

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The 'Ease of Living' theme has been tried to be achieved through the following:

1) farmer friendly initiatives such as increasing MSP for various crops, introducing fish farmer Producer Organisations and Sagar Mitras etc.

2) Ensuring corruption free, policy driven good governance and a clean and sound financial sector. Eg: Proliferation of Machine learning, AI etc. to create digital governance

3) Improving physical quality of life through National Infrastructure Pipeline initiative by 2024-25.

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4) Ensuring women and child welfare, social welfare and tourism and mitigating climate change. Eg: improve pension and insurance penetration, increase vaccination, create museums and heritage sites, create disaster resilient infrastructure through CDRI.

5) Focus on water & sanitation through Atal Bhujal Yojana & Jal Shakti Abhiyan.

6) Focus on education and employment. Eg: New Education Policy, common Eligibility Test by National Recruitment Agency. Apprenticeship schemes etc.

Thus, the Budget is in line with the vision of New India for 21st century.

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12. Several challenges are needed to be addressed to realise the full benefits of the recent agricultural marketing reforms. Discuss. **(250 words) 15**
हालिया कृषि विपणन सुधारों के पूर्ण लाभों को साकार करने के लिए अनेक चुनौतियों का समाधान करने की आवश्यकता है। चर्चा कीजिए।

As part of Atma Nirbhar Bharat Abhiyan, several agricultural marketing reforms have been introduced:

1) Extending TOP to TOTAL to cover all perishable fruits and vegetables for 6 months.

2) Promotion of contract farming and reforming APMC mandi system.

3) Amending Essential commodities Act to remove stockholding limits, except in extraordinary circumstances.

4) creation of Agriculture infrastructure fund, formalisation

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of Microfood Processing industries and introduction of Animal Husbandry Infrastructure fund.

The benefits expected out of these reforms are:

1) It will help farmers to get remunerative prices through increased productivity.

2) It will prevent harassment by middlemen in APMCs and reduce tax burden as well.

3) It will encourage creation of farmer Producer organisations and increase bargaining power of farmers.

4) It will help to reduce price volatility in market and encourage private investment in agriculture.

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However, challenges need to be addressed such as:

1) The APMCs are the option for farmers if they cannot sell in markets. Thus, APMC system should not get weakened.

2) It should not lead to less benefits for farmers due to reduced prices and protection by government.

3) It should not lead to more inequality between big and small & marginal farmers.

4) Consultation with farmer groups is necessary to avoid protests as seen in case of Farm Bills.

Thus, addressing these challenges will help to achieve the intended benefits of the reforms.

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13. Multimodal transport requires multiple integrations across different modes of transportation. Substantiate. What are the challenges and opportunities associated with multimodal transportation for India? **(250 words) 15**

बहुविध परिवहन (मल्टीमॉडल ट्रांसपोर्ट) के लिए परिवहन के विभिन्न साधनों के मध्य विविध रूप से एकीकरण की आवश्यकता है। पुष्टि कीजिए। भारत के लिए बहुविध परिवहन से जुड़ी चुनौतियां और अवसर क्या हैं?

Multimodal transport is the combination of at least two or more different modes to move cargo from one place to another within the country.

It requires multiple integrations across different transport modes.

1) The recent multimodal terminal at Sahibganj, Jharkhand was inaugrated, using land and riverine transport modes.

2) The Jal Marg Vikas Project will connect various National

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waterways in the country to improve shipping and trade.
Eg: connecting ports to the production regions.

3) Multimodal project in the Railways eg. Dedicated freight corridors, requires land and road connection.

The opportunities or benefits will be as follows:

1) It will lead to reduction of costs due to better management of transport.

2) It will lead to better handling and delivery time efficiency.

3) It will lead to increased transport security and easier freight tracking.

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4) It will reduce logistical costs and promote more trade.

5) It will be environmentally sustainable as well.

The challenges are:

1) It will be costly to construct such infrastructure and connect various transport modes.

2) It will lead to displacement of communities and encroachment of land.

3) It will create the challenge of coordination and will require skilled manpower.

4) Delays can lead to more congestion and inefficiency.

Therefore, such concerns need to be resolved urgently. Multimodal transport can improve economic growth

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14. Though COVID-19 pandemic exposes the vulnerability of Informal sector and associated labor force in India, it also presents an opportunity to rebalance formal-informal economy dynamics in the country. Discuss.

(250 words) 15

हालांकि, कोविड-19 महामारी भारत में अनौपचारिक क्षेत्रक और संबद्ध श्रम बल की सुभेद्यता को उजागर करती है, लेकिन साथ ही यह देश में औपचारिक-अनौपचारिक अर्थव्यवस्था की गतिशीलता को संतुलित करने का एक अवसर भी प्रस्तुत करती है। चर्चा कीजिए।

Around 92% of workers in India are employed in the informal sector, according to Arjun Sengupta Committee.

The COVID-19 pandemic exposed the vulnerability of such workers:

1) Migrant workers were easily fired from jobs and had to return to their homes.

2) Lack of income security and regulations, led many workers to suffer from hunger and poverty.

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3) Working conditions being poor in the informal sector is a threat to health of such workers.

This scenario presents an opportunity to rebalance the formal - informal economy dynamics in India.

1) The recently introduced 4 labour codes will help protect informal sector workers.
Eg: Code of wages, Social security, occupational safety and Industrial Relations.

2) It will protect gig and platform workers from firing from jobs and ensure minimum wages.

3) It will help workers to form unions and get their

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grievances redressed in Tribunals.

We also need other reforms to protect informal sector workers such as:

1) Ensuring social security benefits for them eg. insurance, pension, medical check ups.

2) Creating regulations to ask for government permission before firing workers.

3) Ensuring mandatory checks in industries to improve working conditions eg. focus on sanitation and hygiene.

This will help to protect majority of our workers and transform India into a welfare economy.

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15. Highlight the drivers and challenges facing India's ambition to become a gas-based economy. Mention the steps that have been taken by the government recently in this regard. **(250 words) 15**

गैस आधारित अर्थव्यवस्था बनने की भारत की महत्वाकांक्षा के चालकों और सामना की जाने वाली चुनौतियों को रेखांकित कीजिए। इस संबंध में हाल ही में सरकार द्वारा उठाए गए कदमों का उल्लेख कीजिए।

India plans to develop a gas based economy with the cleaner fuel gradually becoming the mainstay of country's energy security needs.

Gas comprises about 6.2% of India's primary energy mix with plans to increase this share to 15% by 2030.

The drivers of a gas-based economy are:

1) Natural gas, predominantly methane, is a cheap and environment friendly fuel.

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2) It has very low emission of particulate matter.

3) It is 40% cheaper than LPG

4) The additional savings if used in productive areas like education, will pave way for a faster socio-economic development.

The challenges are:

1) current dependence on fossil fuels, particularly coal.

2) The reserves of gas are less abundant in India and imports can increase current account deficit.

3) Exploration of natural gas requires manpower and new

technology, which is not found in India.

The recent steps taken by government are:

1) Shifting from open Acreage licensing Policy to Hydrocarbon Acreage Licensing Policy.

2) creating Natural Gas pipelines in North east eg. Urja Ganga Project

3) Allocation of more exploration blocks

4) Investment in gas production, transportation and import terminals.

Therefore, transition towards gas-based economy can support Indian ambition of transforming its energy system towards more efficiency & sustainability.

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16. Climate Change and the associated events endanger the marine and coastal ecosystems while increasing the vulnerability of coastal population. Examine. **(250 words) 15**

जलवायु परिवर्तन और संबद्ध घटनाएं तटीय जनसंख्या की सुभेद्यता को बढ़ाते हुए समुद्री एवं तटीय पारिस्थितिक तंत्रों को खतरे में डालती हैं। परीक्षण कीजिए।

climate change can be defined as the large-scale shifts in weather patterns driven by global warming.

The recent IPCC report on Ocean & Cryosphere highlights the changes taking place in coastal ecosystems.

The dangers associated with climate change for marine and coastal ecosystems are:

1) It will lead to rise in sea level and can affect the coral population.

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2) It can lead to increased temperature of ocean water and affect oxygen levels, threatening marine biodiversity.

3) Ocean acidification due to global warming can lead to coral bleaching.

4) The marine food-chain can be disrupted due to increased pollution and eutrophication.

5) The carbon sequestration potential of oceans can be affected.

6) The melting of Arctic ice due to climate change has opened up new shipping routes and increasing its vulnerability

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to exploitation.

The climate change events also pose threats to coastal communities:

1) Rising sea levels can lead to submergence of cities eg. small islands in Pacific, Mumbai in India.

2) Increasing pollution and loss of biodiversity affects the fishing community.

3) Climate change can increase frequency of disasters eg. cyclones, tsunamis etc.

4) Indigenous communities in Arctic region are now being displaced.

Therefore, combating climate change is essential to protect our marine ecosystem.

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17. Using examples, highlight how natural ecosystems perform different hazard mitigation functions. **(250 words) 15**

उदाहरणों का उपयोग करते हुए, रेखांकित कीजिए कि प्राकृतिक पारिस्थितिक तंत्र किस प्रकार अलग-अलग संकट के शमन का कार्य करते हैं।

Natural ecosystems can help in hazard mitigation. They are thus called BIO-SHIELDS as they shield people from disasters in the same way that artificial structures do.

The various examples of such natural ecosystems are:

1) Wetlands are natural ecosystems which help to prevent urban floods and soil erosion. They capture water and protect biodiversity of the region.

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2) Mangroves are great hazard mitigators, helping to protect coastal communities from cyclones, tsunamis or storm surges. They have strong roots and withstand any damage.

3) Forests are another ecosystem which help to prevent disasters by serving as protective barriers eg. during earthquakes, landslides

4) Mountains also help in hazard mitigation by protecting people from cold waves or incessant rainfall.

5) Disasters like landslides can be prevented through planting of strong tree varieties.

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Therefore, we need to incorporate the use of such natural ecosystems in hazard mitigation.

Eg: in sendai framework, investing in Disaster Risk Reduction for resilience involves non-structural measures which includes use of bio-shields.

The establishment of coalition for Disaster Resilient Infrastructure (CDRI) also aims to improve knowledge sharing on utilising such natural ecosystems for hazard mitigation.

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18. Explain what genome sequencing is and state the challenges in scaling up genome sequencing projects. Also, throw some light on the recently launched IndiGen Project. **(250 words) 15**

व्याख्या कीजिए कि जीनोम अनुक्रमण क्या है और जीनोम अनुक्रमण परियोजनाओं को बढ़ावा देने में विद्यमान चुनौतियों का वर्णन कीजिए। साथ ही, हाल ही में आरंभ की गई इंडिजेन (IndiGen) परियोजना पर कुछ प्रकाश डालिए।

Genome sequencing can be defined as figuring out the order of DNA nucleotides or bases in a genome that make up an organism's DNA. The human genome is made up of 23 chromosome pairs with total of 3 billion DNA base pairs.

Genome sequencing helps in the following:

1) To find out level of diversity in a population.

2) To find out prevalence of diseases in a population.

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3) To apply pharmacogenomics using genome sequencing

4) To aid in study on anthropology

The challenges associated with genome sequencing are:

1) It can lead to increased embryonic or germ line editing eg. creation of Designer babies

2) It can be used for racial superiority projects or for identity politics to win elections.

3) It can lead to surveillance, discrimination and loss of privacy.

4) It requires huge number of resources, funds and expertise which can be expensive.

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The recently launched IndiGen project aims to sequence genomes of 1008 rural Indians. It is an initiative of CSIR. It will help to develop precision medicine, diagnose genetic diseases, and study genetic diversity.

It is being complemented by the Genome India Project, initiated by Department of Biotechnology, to sequence genomes of 10,000 Indians in the first phase.

Thus, genome sequencing has its various benefits but the challenges must be kept in mind to prevent misuse. It can be revolutionary technology.

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19. India needs to avert radicalisation and societal dissention, as internal faultlines are a breeding ground for cyber and transnational terrorism. Discuss. **(250 words) 15**

भारत को कट्टरपंथीकरण और सामाजिक मतभेदों को रोकने की आवश्यकता है, क्योंकि आंतरिक दरारें साइबर एवं पार-राष्ट्रीय आतंकवाद का जनन स्थल होती हैं। चर्चा कीजिए।

Increasing radicalisation and dissent in a society can make people feel alienated, and thus promote various cyber crimes or terrorist activities.

Internal fault lines are a breeding ground for cyber and transnational terrorism in the following ways:

1) Various organised crime groups use cyber space for activities like identity frauds, cyber stalking, financial scams etc.

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2) The alienated individuals are often shown various doctored photos and videos to radicalise them further. Eg: This is used by ISIS and ISI to promote terrorism as a religious duty.

3) often minorities who are discriminated against and lack a decent livelihood, are easier to manipulate to rise against their own country. Eg: They help in logistics and funds support for attacks as seen in Pulwama

4) People whose grievances are not met, often become radicalised through online

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dialogue forums and indulge in lone-wolf attacks.

5) Isolated individuals use cyber space for illicit activities like smuggling, money laundering.

Therefore, averting radicalisation is necessary:

1) Political executives must make development a priority to improve livelihoods of people in sensitive areas.

2) The capabilities of defence forces, RAW, IB, Cyber cells of State Police need to be improved.

3) Grievance redressal forums should be set up.

4) Cyber security must be strengthened.

This will help to prevent cyber crimes and terrorism.

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20. Given the emerging security challenges, discuss why the establishment of Integrated Theatre Commands is being seen as an important defence reform. **(250 words) 15**

उभरती हुई सुरक्षा चुनौतियों को देखते हुए, चर्चा कीजिए कि क्यों एकीकृत थिएटर कमान की स्थापना को महत्वपूर्ण रक्षा सुधार के रूप में देखा जा रहा है।

As part of defence reforms after creation of post of chief of Defence staff, the government is working on formation of integrated theatre commands.

The Indian Army has 17 commands currently. There are only 2 Tri-services commands, in Andaman & Nicobar and for Nuclear weapons.

An integrated theatre command envisages a unified command of the 3 services under a single commander for geographical areas that are of strategic & security concern

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The commander of such a force will be able to bear all resources at his disposal with seamless efficacy. He will not be answerable to individual services.

Integration and jointness of the 3 forces will avoid duplication of resources. The services will get to know one another better, strengthening cohesion in the defence establishment.

The Shekatkar Committee has recommended the creation of 3 integrated theatre commands
- northern for china border
- western for Pakistan border
- southern for maritime role

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It is seen as an important defence reform because:

1) It will help in better acclimatisation of troops to the given battlespace

2) Training needs and administrative requirements of troops can be better understood.

3) Equipment can be procured, maintained and pre-positioned for quick mobilisation.

4) will help in prompt and precise decision making under a single commander.

5) will lead to better coordination and intelligence sharing.

Thus, given the current security threats from China and Pakistan, this reform is necessary.